

CLAIMS

1. A device for generating an image from an IR radiation comprising a detection module (1) including a plurality of heat detectors (2) each having a specific electric resistance and being polarised so as to deliver 5 a signal representing a detected IR radiation, said device comprising a read module (8) intended to convert said electric signal into a signal which can be used by an image processing block (18) and an electric signal compensation module (10) comprising a first branch (12) 10 making it possible to carry out a first thresholding intended to extract from said electric signal a first constant value signal due to the polarisation of the heat detectors (1), a device characterised in that the compensation module (10) comprises at least one second branch (30) making it possible to carry out a second thresholding intended to extract from the electric signal resulting from the first thresholding at least one second low-level signal due to the dispersion of the electric resistances of the heat detectors and/or to the 15 fluctuations in the temperature of the focal plane of the 20 detection module.

2. A device according to claim 1, characterised in that said second branch (30) is connected to a correction 25 circuit (32) intended to generate, for each heat detector, a specific setting allowing the extraction of said second signal to be controlled.

3. A device according to one of claims 1 or 2, characterised in that the second branch (30) comprises a passive heat detector (34) mounted in series with a second transistor (36) the conduction of which is  
5 controlled by said specific setting.

4. A device according to claim 2, characterised in that the second branch (30) comprises only a current source and a first control transistor (36) the conduction  
10 of which is controlled by said specific setting.

5. A device according to claim 1, characterised in that the second branch (30) comprises a plurality of sub-branches (52,54,56) mounted in parallel, each sub-branch  
15 being able to conduct a pre-set current.

6. A device according to one of the claims 1 to 4, characterised in that the first branch (12) comprises a passive heat detector (14) provided in series with a first control transistor (22) the conduction of which is  
20 controlled by a constant voltage.

7. A device according to claim 6, characterised in that each heat detector (2) is constituted by a micro-  
25 bolometer.

8. A device according to claims 3 and 7, characterised in that the second passive micro-bolometer (34) of the second branch (34) has a high resistance

relative to the resistance of the first passive microbolometer (14) of the first one (12).

9. A device according to claim 3, characterised in  
5 that the correction circuit (32) comprises a generator (40) intended to provide a digital setting, a digital-to-analogue converter (42) intended to convert said digital setting into analogue voltage so as to control the second transistor (36).

10

10. A device according to claim 9, characterised in  
that the correction circuit (32) additionally comprises  
an attenuation module (44).

15

11. A device according to claim 4, characterised in  
that the correction circuit (32) comprises a DC voltage generator (50) intended to supply a DC analogue voltage allowing the current in said second branch (30) to be regulated.

20

12. A device according to one of the claims 1 to 11,  
characterised in that the compensation block (10)  
comprises a control loop making it possible to re-inject  
into each of the thresholding branches (12), (30) a  
25 measurement of the temperature of the focal plane of the  
detection module (1) so as to modulate the values of the  
signals extracted by the first branch (12) and the second  
branch (30) as a function of the temperature of the focal  
plane of detection.

13. A device according to claim 12, characterised in that the active micro-bolometers (2) are distributed over the focal plane of the detection device in M lines and N columns.

5

14. A device according to claim 9, characterised in that the digital-to-analogue converter (42) is integrated monolithically with the micro-bolometer (2).

10

15. A device according to one of the claims 1 to 14, characterised in that one of the first and second branches (12, 30) is dedicated to compensating for resistance dispersions and the other branch is dedicated to compensating for temperature fluctuations in the focal plane.

15

16. A device according to claim 15, characterised in that the second branch (30) comprises two sub-branches, each sub-branch including a balanced current source associated with a switching transistor controlled by a digital signal.

20

17. A process for correcting an electric signal representing an IR radiation detected by a heat detector (2) having a specific electric resistance, said process comprising a first stage allowing a first polarisation signal having a constant value to be extracted from the electric signal, a process characterised in that it comprises a second stage consisting in extracting from

the electric signal a second signal, of low level relative to the first signal.

18. A process according to claim 17, characterised  
5 in that it comprises a stage consisting in generating a specific setting allowing the extraction of said second signal to be controlled.

19. A process according to claim 18, characterised  
10 in that it comprises a heat detector (2) calibration phase comprising the following stages:

- a) defocusing the scene;
- b) storing the signal resulting from the previous stage;
- 15 c) using the stored signal to control the extraction of the low level signal.